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REMARKS

Claims 45 - 49, 51, 52, 54, 55, 65, 66, 68, and 69 remain pending in this application. The allowance of claims 45 - 47 is gratefully acknowledged. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

Claims 48, 49, 51, and 68 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Yanagidaira (U.S. Patent No. 5,954,629) in view of Yasushi (U.S. Patent No. 5,241,967) and DeVito (U.S. Patent No. 6,001,065).

It is respectfully submitted that the proposed combination still fails to teach a medical system to analyze brain waves of a subject comprising "(c) *an amplifier situated on the connection means, the amplifier amplifying the detected brain waves*; (d) a radio transmitter situated on the connection means, the radio transmitter generating a brain wave broadcast signal based on the detected analog brain waves, the radio transmitter broadcasting the brain wave broadcast signal; (e) *a receiver receiving and amplifying the brain wave broadcast signal*," as recited in claim 48.

Initially it is noted that Yanagidaira neither shows nor suggests a medical system for analyzing brain waves of a subject as recited in claim 48. This device is in no way related to the analysis of brain waves. It is therefore respectfully submitted that none of the cited references provides any motivation for any modification of this system for such analysis. As described in more detail below, none of the cited references provided any motivation to those skilled in the art for the addition to this device of either a sound generator or a receiver receiving and amplifying *broadcast* signals as recited in claim 48.

In the proposed modification, the Examiner has suggested that the headband 11 of Yanagidaira be fitted with an amplifier and transmitter from DeVito to transmit a signal to the light signal producing system 200 of Yanagidaira. (See 3/13/08 Office Action, pp. 2 - 3). The Examiner has further suggested that the amplifier 24 and light signal producing system of Yanagidaira are comparable to the "receiver receiving and amplifying the brain wave broadcast signal," as recited in claim 48. (*Id.*)

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Initially, it is respectfully submitted that the Examiner's interpretation of the light signal producing system 200 as a "receiver" in the Yanagidaira device is improper. (See 3/13/08 Office Action, pp. 2 - 3). The light signal producing system 200 of Yanagidaira is directed to converting an analog brain signal from electrodes 12, 13 and 14 into a corresponding light signal. (See Yanagidaira, col. 1, ll. 45 - 54; col. 4, ll. 54 - 64; Figs. 1, 3, 13). The Examiner provides no support for the interpretation of the light signal producing system 200 as a "receiver" as it is not shown to function as a receiver at all and clearly does not receive any "broadcast signal," as recited in claim 48. Rather, signals enter the light signal producing system 200 is first directed through the amplifier 24, from which the signal is converted to a digital signal and further manipulated in accordance with a method disclosed therein to produce a light signal. (*Id.*) However, as noted below, the amplifier 24 also fails to overcome the limitation of a "receiver receiving and amplifying the brain wave broadcast signal," as recited in claim 48. Nothing in Yanagidaira either shows or suggests such functionality for the light signal producing system 200.

Specifically, Yanagidaira notes that the amplifier 24 is wired directly to the electrodes 12, 13, and 14 of the headband 11 to amplify an analog brain wave signal and never receives any broadcast signal. (See Yanagidaira, col. 1, ll. 45 - 54; Figs. 1, 3, 13). Those skilled in the art would not interpret an amplifier to which outputs of electrodes 12, 13 and 14 are directly wired as a "receiver" as that term is employed in the present application. Rather, as would be understood by those skilled in the art is a device that receives a wirelessly transmitted signal. The mere fact that the amplifier 24 amplifies a signal does not overcome the deficiencies of the claim 48, which specifically requires that the receiver *receive* and amplify a *brain wave broadcast signal*.

Still further, it is submitted that the cited references provide no motivation to modify the Yanagidaira device to include a "receiver receiving and amplifying the brain wave broadcast signal," as recited in claim 48. Specifically, Yanagidaira shows a self contained device to be worn on the head and which generates a light signal based on detected brain waves -- i.e., the device does not communicate with any other device. None of the other references provides any motivation for any such communication between the Yanagidaira device and any other device, much less one which would be aided by the inclusion of a receiver receiving any broadcast signal. It is therefore submitted that the proposed modification to the Yanagidaira device is

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improper and that claim 48 is allowable for at least this reason in addition to those outlined below.

It is further submitted that none of the cited references -- including Yasushi -- shows any sound generator converting a "frequency band signal into a sound corresponding to the analog brain waves," as recited in claim 48. The sound generator of Yasushi merely produces an audible signal in response to an amplitude of a filtered brain wave signal. (See Yasushi, col. 9, li. 47 -- col. 10, li. 14; Fig. 9). Specifically, the sound generator 14 of Yasushi does not convert a frequency band signal to a sound, but rather, emits a sound only when an amplitude detector 13 detects in a filtered brain wave a frequency of at least a predetermined amplitude. (*Id.*) It is therefore respectfully submitted that Yasushi fails to teach or suggest a "sound generator *converting the frequency band signal into a sound, corresponding to the analog brain waves,*" as recited in claim 48. Yanagidaira and DeVito also fail to teach or suggest the conversion of a frequency band signal into a sound. It is further submitted that the mere fact that Yasushi teaches the generation of a sound indicating that an amplitude of the brain wave signal is at least a predetermined level does not constitute "*converting the frequency band signal into a sound corresponding to the analog brain waves,*" as recited in claim 48.

Lastly, it is noted that the cited references provided no motivation to those skilled in the art to have modified the Yanagidaira device to include a sound generator. Specifically, there is no indication that the generation of a sound in response to brain waves would serve the purpose of the invention in any way -- i.e., that such a sound would have a relaxing effect on a patient. It is at least equally likely that such a sound would hinder this purpose. In any case, nothing in any of the references indicates that such a modification would have been desirable for the stated purpose of the Yanagidaira device.

Accordingly, it is respectfully submitted that Yanagidaira, Yasushi and DeVito, taken either alone or in combination, do not teach or suggest a "receiver receiving and amplifying the brainwave broadcast signal" and a "sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves," as recited in claim 48 and that claim 48 is allowable over Yanagidaira, Yasushi and DeVito. Because claims 49 and 51 depend from, and, therefore include all of the limitations of claim 48, it is respectfully submitted that these claims are also allowable.

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Claim 68 recites limitations substantially similar to those of claim 48 including a medical method to analyze brain waves of a subject, comprising the steps of: "(a) removably connecting an active EEG (electroencephalograph) electrode to a head of the subject; (b) detecting the subject's analog brain waves; (c) amplifying the detected brain waves using an amplifier situated on a device connecting the EEG electrode to a head of the subject; (d) *broadcasting a brain wave broadcast signal, generated based on the detected analog brain waves, using a transmitter situated on the device connecting the EEG to the subject's head*; (e) *receiving and amplifying the brain wave broadcast signal using a hand-held radio receiver*; (f) selectively separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal; and (g) *generating a sound based on the frequency band signal using the hand-held receiver*." Thus, it is respectfully submitted that claim 68 is also allowable for at least the same reasons stated above in regard to claim 48.

Claims 48, 49, 51, 52, 55, 65, and 68 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Itil (U.S. Patent No. 5,357,957) in view of Johansson (U.S. Patent No. 4,683,892) and Lee (U.S. Patent No. 4,454,886). In support of the rejection, the Examiner stated that Itil discloses the invention as claimed except for the determination of brain dysfunction and producing an audible output but that these features are disclosed in Johansson and Lee, respectively. (See 9/20/07 Office Action, pp. 2 - 3).

The Examiner has replied to the previously submitted argument that Lee does not provide a sound generator converting a frequency band signal into sound by stating only that Lee does not need to disclose all of the features of the claim as it is the third reference in a three reference combination. (See 3/13/08 Office Action, pp. 3 - 4, 5 - 6). However, it is respectfully submitted that none of the references in the proposed modification shows either "a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal" or a "sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves," as recited in claim 48.

Specifically, it is submitted that, although Lee is capable of producing a sound in

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response to a signal provided thereto, Lee does not teach the limitation of a sound generator *"converting the frequency band signal into a sound, corresponding to the analog brain waves,"* as recited in claim 48. (Emphasis Added). The sound generator of claim 48 converts into a sound the frequency band signal formed by "a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal." The Lee device, on the other hand, is directed to the conversion of an entire brainwave 22 into a sound output signal. (See Lee, col. 2, ll. 24 - 29; Fig. 1). The limitations of claim 48 allow for the generation of a sound for a frequency band, wherein the generated sound is indicative of the behavior of said frequency band and thus provides a means to "analyze brain waves of a subject," as recited in claim 48. Conversely, a sound corresponding to brainwave 22 would be indicative of the entire brainwave of a patient, wherein the generated sound would encompass all frequency bands comprised therein and a subsequent analysis by a hardware system would be needed for interpretation of the sound. The present invention seeks to eliminate the need for this subsequent interpretation by generating a sound in response to a specific frequency band(s). Accordingly, it is submitted that Lee fails to teach or suggest a "sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves", as recited in claim 48. By merely providing the concept of using sound to provide immediate feedback, Lee does not overcome the limitations of claim 48, which recite the conversion of one or more *frequency band* signals into sound.

The Examiner stated that this point is irrelevant because Lee is the third reference in a three reference combination and that Lee is cited only to teach that an audible output is advantageous. (See 3/13/08 Office Action, p. 5). However, it is submitted that claim 48 recites not only the generation of a sound output but the conversion of "the frequency band signal into a sound, corresponding to the analog brain waves." That is, any advantages represented by the musical output sounds of Lee are clearly unrelated to the motivation that would be required to generate the proposed modification of the cited references to obtain the claimed medical system for the analysis of brain waves.

Even if the Itil device were modified to include the sound producing system of Lee, the modification would not be capable of forming a "medical system to analyze brain waves of a subject," as recited in claim 48. Specifically, Lee indicates that the brainwave 22 is divided into

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epochs with a length of, for example, T_1 . The output segment 36, which is sent to the loudspeaker to form a train of replica epoch signals each of the duration T_1 . (See Lee, col. 2, ll. 24 - 56; Figs. 1 - 2). Nothing in Lee shows or suggests any utility to such epoch signals or any relation between these signals and brain wave activity that may be discerned by a listener. It is submitted that the sound producing system of Lee would have to be significantly restructured to produce a sound indicative of a frequency band signal corresponding to analog brain waves and even more so to produce a system that may be used to analyze brain waves of a subject and that none of the cited references provides any indication as to how such restructuring may be done.

Accordingly, it is respectfully submitted that none of the cited references -- including Lee -- teaches or suggests a "sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves," as recited in claim 48.

It is therefore submitted that Itil, Johansson and Lee, taken either alone or in any combination, do not satisfy the limitations of claim 48 and that claim 48 is allowable over the cited references for at least this reason. Because claims 49 and 50 depend from, and therefore include all of the limitations of claim 48, it is respectfully submitted that these claims are also allowable.

Claim 52 recites limitations substantially similar to those of claim 48 including "a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal." Thus, it is respectfully submitted that claim 52 is also allowable for at least the additional reasons stated above in regard to claim 48. Because claims 55 and 65 depend from, and, therefore include all of the limitations of claim 52, it is respectfully submitted that these claims are also allowable.

Claim 68 recites limitations substantially similar to those of claim 48 including "selectively separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal". Thus, it is respectfully submitted that claim 68 is also allowable for at least the additional reasons stated above in regard to claim 48.

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Claims 54 and 66 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Itil in view of Johansson and Lee and in further view of Zimmerman (U.S. Patent No. 5,279,305). It is respectfully submitted that Zimmerman does not cure the above-described deficiencies of Lee. Thus, because claims 54 and 66 depend from, and, therefore include all of the limitations of allowable claim 52, it is respectfully submitted that these claims are also allowable.

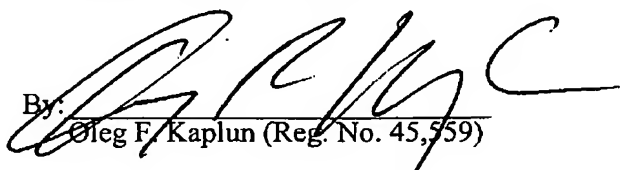
Claim 69 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Itil in view of Johansson and Lee in further view of John (U.S. Patent No. 4,454,886). It is respectfully submitted that John does not cure the above-described deficiencies of Itil. Thus, because claim 69 depends from, and, therefore includes all of the limitations of allowable claim 68, it is respectfully submitted that this claim is also allowable.

CONCLUSION

It is therefore respectfully submitted that all of the pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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